

Work Order ID 152902

Monday, November 07, 2016 4:06:18 PM

152902

Page 1

Item ID: D3774-3

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Seat Back, LH/RH

Stop

NS2

Start Date: 10/31/2016 Start Qty: 2.00

2

Cust Item ID:

Required Date: 11/7/2016 Req'd Qty: 2.00

2

Customer:

Reference:

Approvals:

Process Plan:

DAS**21**

Date: NOV 08 2016 Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool # Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr

Revision Nbr

D3774

Rev B

100

100

Thermoform

Thermoforming Machine

HAND FINISHING THERMOFORMING

0.00

Memo

0.06

Set up machine program D3774-3 Set up clamping frame as per folio

DAS**07****9-89**

16/11/30

110

110

Thermoform

Thermoforming Machine

HAND FINISHING THERMOFORMING

0.00

Memo

0.03

Cut Blanks

DAS**07****9-89**

16/11/30

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="width:12.5%;">Skid-tube ☐</td> <td style="width:12.5%;">Cross tube ☐</td> <td style="width:12.5%;">Water Jet ☐</td> <td style="width:12.5%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coor. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coor. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																							
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Page 2

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 Revision ID: Stop ***NS2***
 Item Name: Seat Back, LH/RH
 Start Date: 10/31/2016 Start Qty: 2.00 ***2*** Cust Item ID:
 Required Date: 11/7/2016 Req'd Qty: 2.00 ***2*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
115	Dry Material	0.00							DAS 07 9-89
115						2			
HandThermo	Memo	0.00							
Hand Finishing Thermoforming	Dry Sheet as per QSI022 POLYCARBONATE								11/11/30
	Temp: <u>245 deg. F</u>								
	Time IN: <u>5:00 PM</u>								
	Time OUT: <u>5:00 AM</u>								
120	THERMOFORMING MACHINE	0.00							DAS 07 9-89
120						2			
Thermoform	Memo	0.16							
Thermoforming Machine	Thermoform as per Dwg. D32811and Folio FTA 01								11/11/30
	1Dwg. Rev. <u>B</u>								
	Folio Rev. <u>C</u>								
	Visually inspect for proper formation of each part								

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140 *140* Thermoform Thermoforming Machine	HAND FINISHING THERMOFORMING Memo Trim to Finished Dimensions	0.00 0.23				<u>2</u>			DAS 07 9-89 16/07/01
150 *150* QC Quality Control	QC2- Inspect parts off machine FAI/FAIB Memo 1) Check dimensions to ensure conformity to drawing tolerances.	0.00 0.00				<u>2</u>			DAS 07 9-89 16/12/01
160 *160* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.01				<u>2</u>	<u>16-12-01</u>		DAS 9 9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
54-1 TO 28-9 54-3 TO 28-2								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
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Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

170

Identify as per dwg & Stock Location: St250

0.00

170

Packaging

Memo

0.00

Packaging

2

DAS
6
9-89

DEC 02 2016

180

QC21- Final Inspection - Work Order Release

0.00

180

QC

Memo

0.03

Quality Control

DAS
21
9-89

DEC 02 2016

DAS
21
9-89

DEC 02 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐	☐ No Re-verification	Pressure/Forced ☐		Temperature/Cure ☐	☐ Power Loss/Surge	☐ Positioned Wrong	
Design ☐	☐ Operator	Bending ☐		Set-up ☐	☐ Folio/Program	☐ Outside Dimensions	
Doc/Data ☐	☐ Offset/Setup	Centre Not Concentric ☐		BOM/Route ☐	☐ Grain	☐ Over/Under tolerance	
Equip/Tooling ☐	☐ Supplier	Cracks ☐		Broken/Damage/Defect ☐	☐ Weld	☐ Part Incorrect	
Handling/Pre ☐	☐ Training	Crimp/Kink/Ripple/Wave ☐		Inspection Incomplete/Unqualified ☐	☐ Wrong Stock Pulled	☐ Part Lost/Missing	
Material ☐	☐ Use for Testing	Cuffs ☐		Contamination ☐	☐ Out of Sequence	☐ Part Moved	
Internal Transport ☐	☐ Poor Information	Crushing ☐		Countersink ☐	☐ Off-set	☐ Drawing	
Tribal Knowledge ☐	☐ Rushing	Heat Treat ☐		Cut Too Short ☐	☐ Mislabeled	☐ Finish	
LOA ☐	☐ Product Improvement	Wave/Twist in Tube ☐		Instructions Incomplete/Unclear ☐	☐ Fit/Function	☐ Misread	
Substation ☐	☐ Process Improvement	Marks/Chatter ☐		Drill Holes ☐	☐ Misaligned/off center	☐ Turning Sequence	
Past Expiry Date ☐	☐ Manufacturing Process	OTHER : _____					
Misidentified ☐	☐ Past Due						

Picklist Print

Monday, November 07, 2016 4:06:17 PM

Work Order ID: 152902

152902

Parent Item: D3774-3

D3774-3

Parent Item Name: Seat Back, LH/RH

Start Date: 10/31/2016

Required Date: 11/7/2016

Start Qty: 2.00

Required Qty: 2.00

Comments: IPP REV:A New Issue 08.06.04 DL verified by:DD
IPP REV. B Dwg. Update 08.08.19 DL
Add Step 115 Dry Material 10/04/21 DL

Ipp Rev. C

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MLEXS.125-F60029-04		Purchased	No			100	sf	1,385.302	10.667	25.09882			DAS 07 9-89

MI FXS 125-F60029-04

GE PLASTICS LEXAN SHEET (DARK GREY)

**

Location

Loc Qty

Loc Code

MAT018

1385.302353

m135074

1385.30235

25.10 sq ft

16/11/30.

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

DART AEROSPACE LTD		Work Order: 152902
Description: Seat Back		Part Number: D3774-3
Inspection Dwg: D3774	Rev: B	Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

THERMOFORMING SECTION

Description	Accept	Reject	Method of Inspection	Comments
Shape Definition	✓			
Texture Retention	✓			
Material imperfections such as bumps, cracks, voids, scratching	✓			

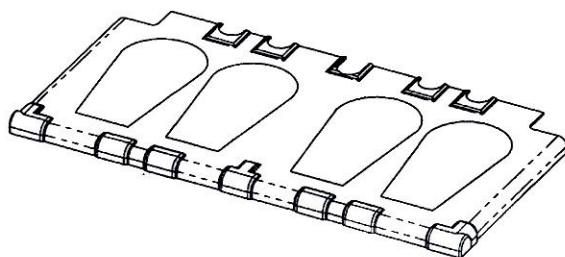
Measured by: DAS 07 9-89	Date: 16/11/30
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TRIMMING SECTION

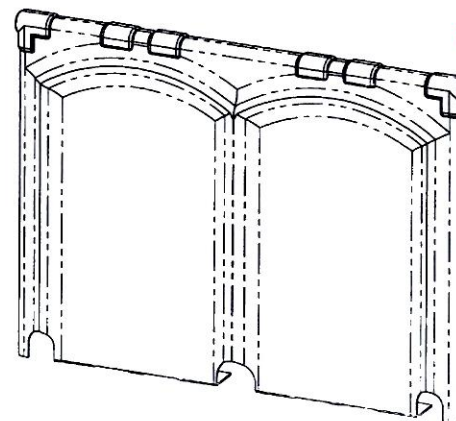
Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
1.3	+/-0.100	1.4"	✓			
33.9	+/-0.100	33.9"	✓			
0.085	Min	0.093"	✓			
0.100	Min	0.111"	✓			
0.100	Min	0.110"	✓			
0.100	Min	0.115"	✓			
0.100	Min	0.115"	✓			
0.100	Min	0.114"	✓			
0.100	Min	0.110"	✓			
0.100	Min	0.106"	✓			
0.100	Min					

Measured by: DAS 07 9-89	Date: 16/12/01
Audited by: PD	Date: 16.12.01
Prototype Approval: N/A	Date: N/A

Rev	Date	Change	Revised by	Approved
A	08.09.04	New Issue	KJ/DL	
B	09.05.19	Dimension 17.4 removed	KJ	



D3774-1 SEAT BOTTOM

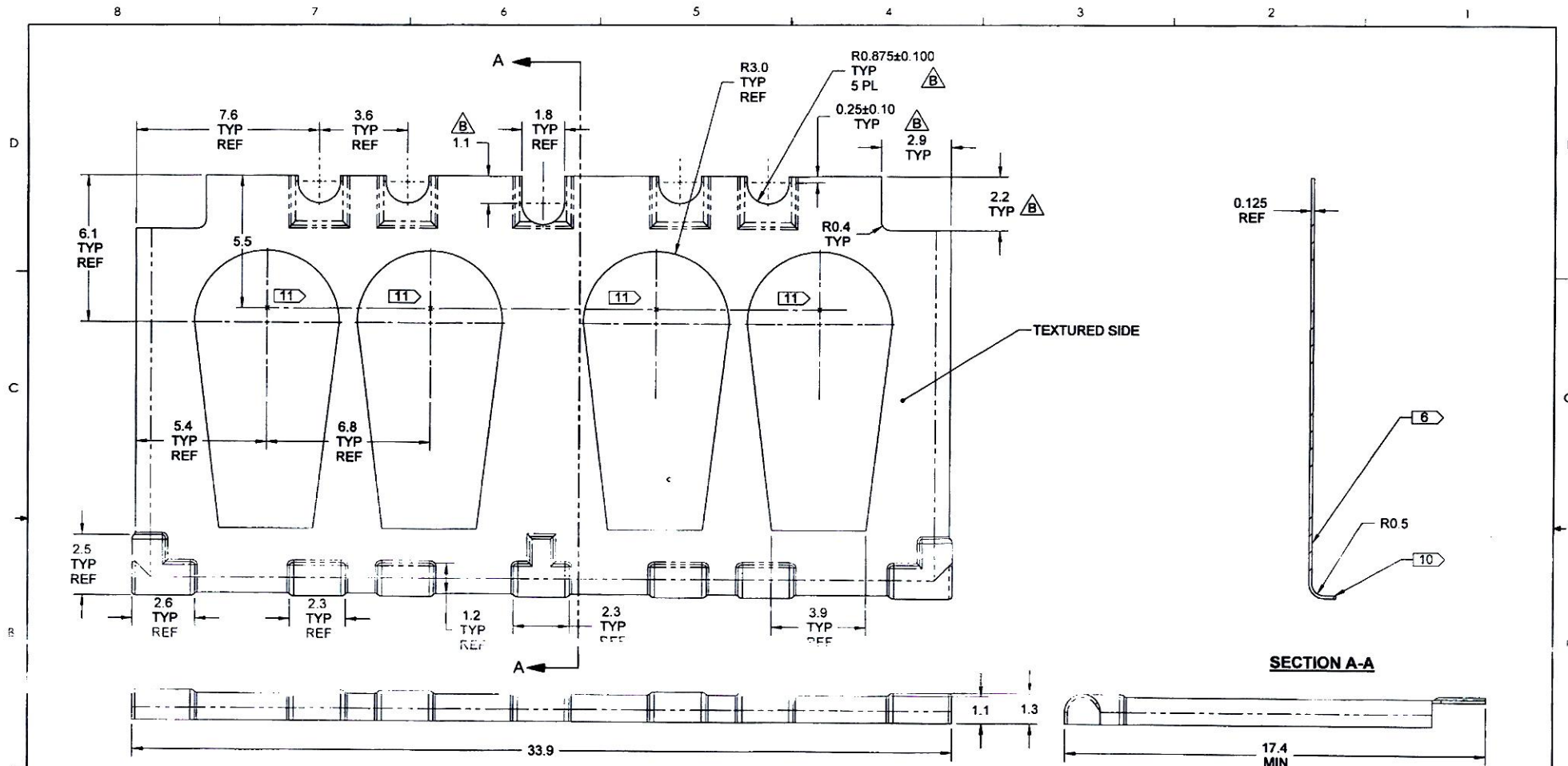


D3774-3 SEAT BACK

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 152902 MLJ
10-11-08

RELEASED
08-08-11-08

B	UPDATE CUTOUT DIMENSIONS (ZN D4-2, D6-2, C4-3, C7-3); UPDATE MINIMUM THICKNESS (ZN A5-2, A5-3); ADD HOLES ON D3774-3 (ZN B6-3); REASON: MANUFACTURING CAPABILITIES		PH	08.07.25
A	NEW ISSUE		HS	08.06.23
REV.	DESCRIPTION		BY	DATE
DESIGN	HS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA		
DRAWN	PH			
CHECKED		DRAWING NO.	REV. B	
MFG. APPR.		D3774	SHEET 1 OF 3	
APPROVED		TITLE	SCALE	
DE APPR.		SEAT	NTS	
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D3774-1 SEAT BOTTOM

NOTES:

- 1) MATERIAL: F60029 GREY LEXAN SHEET (HEAVY HAIRCELL TEXTURE) 0.125" THICK TEXTURED SIDE UP (REF. DART SPEC MLEXS.125-F60029-04)
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3774-1" USING VIBRATING STYLUS
- 7) WEIGHT: 2.93 lbs
- 8) PART TO BE PRODUCED FROM MOLD DT9022 AND PER DART QSI 022
- 9) OVERALL DIMENSIONS GIVEN ONLY FOR FURTHER INFORMATION REFER TO MOLD DT9022
- 10) MINIMUM MATERIAL THICKNESS AFTER FORMING ON FLANGES (WITHIN 2.0 FROM EDGES) IS 0.085
- 11) MINIMUM MATERIAL THICKNESS AFTER FORMING AT THESE POINTS IS 0.100

RELEASED
08-06-11-11

DESIGN	HS	DART AEROSPACE LTD	
DRAWN	PH	HAWKESBURY, ONTARIO, CANADA	
CHECKED	PH	DRAWING NO.	REV. B
MFG. APPR.	PH	D3774	SHEET 2 OF 3
APPROVED	PH	TITLE	SCALE
DE APPR.	PH	SEAT	NTS
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8 7 6 5 4 3 2 1

D

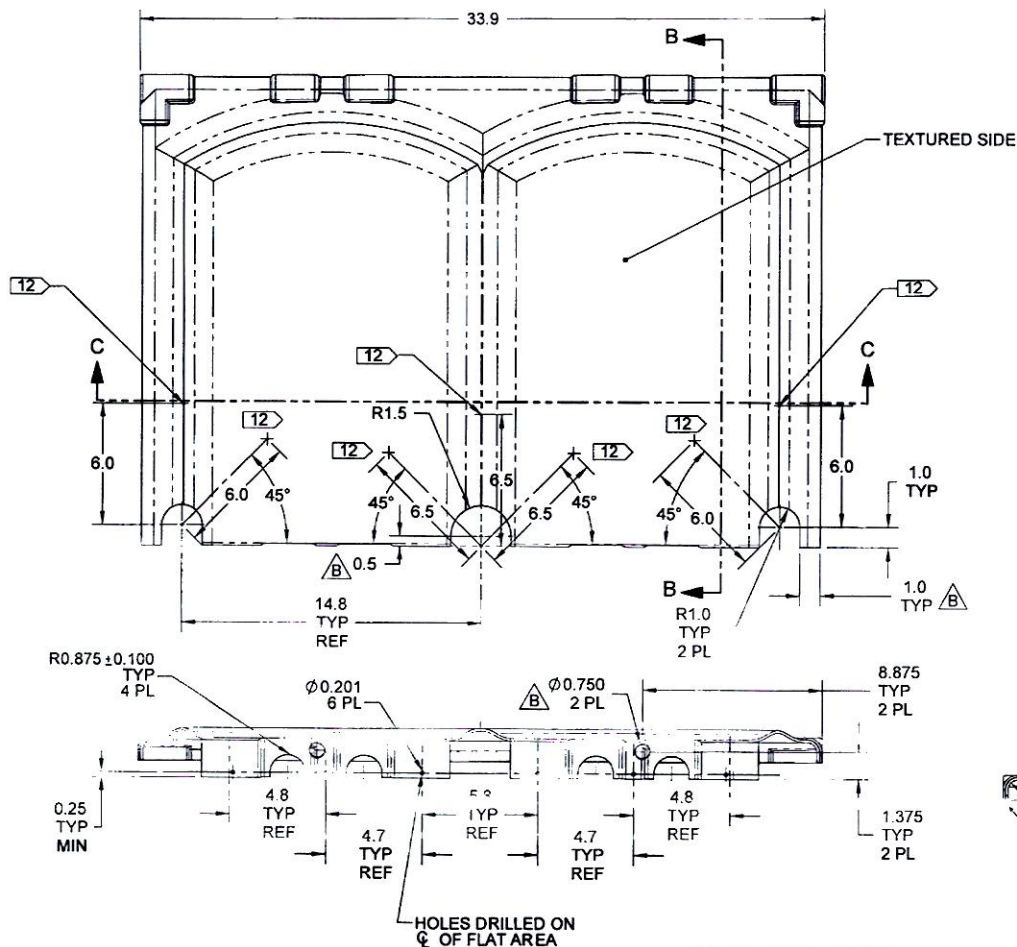
C

D

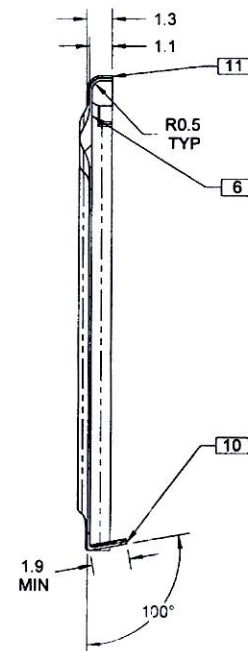
C

B

A



D3774-3 SEAT BACK



SECTION B-B



SECTION C-C

NOTES:

- 1) MATERIAL: F60029 GREY LEXAN SHEET (HEAVY HAIRCELL TEXTURE) 0.125" THICK TEXTURED SIDE UP (REF. DART SPEC MLEXS.125-F60029-04)
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3774-3" USING VIBRATING STYLUS
- 7) WEIGHT: 4.82 lbs
- 8) PART TO BE PRODUCED FROM MOLD DT9023 AND PER DART QSI 022
- 9) OVERALL DIMENSIONS GIVEN ONLY FOR FURTHER INFORMATION REFER TO MOLD DT9023
- 10) MINIMUM MATERIAL THICKNESS AFTER FORMING ON BOTTOM FLANGE IS 0.085
- 11) MINIMUM MATERIAL THICKNESS AFTER FORMING FLANGES (WITHIN 2.0 FROM EDGES) IS 0.085
- 12) MINIMUM MATERIAL THICKNESS AFTER FORMING AT THESE POINTS IS 0.100

B

RELEASED
08-05-11

DESIGN	HS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RE		
CHECKED	LS	DRAWING NO.	REV. B
MFG. APPR.	LS	D3774	SHEET 3 OF 3
APPROVED	LS	TITLE	SCALE
DE APPR.	LS	SEAT	NTS
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8 7 6 5 4 3 2 1